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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/692,840

10/24/2003

Rudolf M. Smaling

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BARNES & THORNBURG LLP
11 SOUTH MERIDIAN
INDIANAPOLIS, IN 46204

EXAMINER

HANDAL, KAITLY V

ART UNIT

PAPER NUMBER

1764

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

02/21/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/692,840

Applicant(s)

SMALING ET AL.

Examiner

Kaity Handal

Art Unit

1764

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 January 2007.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) _____ is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-10 is/are allowed.
- 6) ☒ Claim(s) 17-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 17-18, and 20-23 are rejected under 35 U.S.C. 102 (b) as being anticipated by Nagano (JP 11-79702).

With respect to claims 17, 19, Nagano teaches a method of operating a fuel reformer (fig.3, 1) comprising the step of advancing air (via blower (31)) in the absence/(stopping pump (22)) of fuel (methanol and water in tank (21)) into a housing of the fuel reformer (1) (pages 21- 22, paragraph [0039]).

With respect to claims 20-21 and 23, Nagano teaches wherein the advancing step is performed at predetermined time intervals (page 9, paragraph [0014]) – Nagano suggests that the air advancing step (regeneration) followed by the reforming step (modifying reaction) is performed on cyclical basis where one is repeated after the other ((see also page 11, paragraph [0018]) where Nagano teaches the time element) (pages 21- 22, paragraph [0039])).

With respect to claim 22, Nagano teaches wherein the method of operating the fuel reformer further comprises the step of determining the concentration of various matters which would encompass the amount of soot of the instant claim (page 16,

paragraph [0028]) within the fuel reformer housing, and wherein the advancing step includes advancing air in the absence of fuel (pages 21- 22, paragraph [0039]) if the concentration of various matters, which would encompass the amount of soot of the instant claim, within the fuel reformer housing is greater than or equal to a predetermined amount (page 11, paragraph [0018]). Though Nagano does not explicitly teach determining the amount of soot, he does teach detecting process parameters, such as the temperature of the reforming catalyst, which indicates the accumulation of various matters including soot within the catalyst and where the temperature is positively proportionate to the presence of various matters therein (page 11, paragraph [0018]).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nagano (JP 11-79702), as applied to claim 17, in view of Collins et al. (US 5,458,857).

With respect to claim 18, Nagano discloses all claim limitations as set forth above including advancing a mixture of fuel and water into the fuel reformer housing prior to the step of advancing air in the absence of fuel into the fuel reformer housing. Nagano fails to teach wherein the mixture is comprised of fuel and air. Collins

teaches fuel reforming where fuel is mixed with air in order to provide a more energy efficient reforming process than other known reforming processes in the art (col. 1, lines 51-63).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to advance a mixture comprised of fuel and air in Nagano's apparatus, as taught by Collins, in order to provide a more energy efficient reforming process than other known fuel reforming processes in the art.

Allowable Subject Matter

Claims 1-10 are allowed.

The following is an examiner's statement of reasons for allowance: the method of operating a plasma fuel reformer comprising the steps of: generating a plasma arc, advancing a first air/fuel mixture having a first air-to-fuel ratio into the plasma arc, determining if a soot purge of the plasma fuel reformer is to be performed and generating a purge-soot signal in response thereto, advancing a second air/fuel mixture having a second air-to-fuel ratio into the plasma arc in response to generation of the purge-soot signal wherein the second air-to-fuel ratio is greater than the first air-to-fuel ratio. The step of determining if a soot purge of the plasma reformer is to be performed is missing in the prior of record.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably

accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Response to Arguments

35 USC 112 Rejection

Rejection made to claims 5-6 under 35 USC 112 is withdrawn by examiner due to applicant's convincing argument.

Prior Art Rejection

Applicant's arguments, see Remarks, filed 1/10/2007, with respect to the rejection(s) of claim(s) 17-23 under 35 USC 102 and 103 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Nagano as set forth above.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kaity Handal whose telephone number is (571) 272-8520. The examiner can normally be reached on M-F 8-5.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1764

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

 KH

2/15/2007


Glenn Caldarola
Supervisory Patent Examiner
Technology Center 1700